WHAT IS CLAIMED IS:

1. A balloon catheter operable to detect obstruction of blood flow within a blood vessel, comprising:

a. a controllably inflatable balloon;

b. a first pressure sensor operable to measure and report ambient pressure within said blood vessel at a position proximal to said balloon; and

c. a second pressure sensor operable to measure and report ambient pressure within said blood vessel at a position distal to said balloon.

2. The catheter of claim 1, wherein at least one of said first and second pressure sensors is operable to report pressure measurements to a data receiver by wire connection.

3. The catheter of claim 1, wherein at least one of said first and second pressure sensors is operable to report pressure measurements to a data receiver by wireless connection.

4. A method for detecting obstruction of blood flow within a blood vessel, comprising:

a. introducing into said blood vessel a balloon catheter which comprises

i. a balloon operable to be controllably inflated under pressure of a pressurized inflating fluid,

ii. a first pressure sensor operable to report ambient pressure within said blood vessel at a position proximal to said balloon, and

iii. a second pressure sensor operable to measure and report ambient pressure within said blood vessel at a position distal to said balloon;

b. obtaining a first pressure measurement of ambient pressure at said first sensor;

c. obtaining a second pressure measurement of ambient pressure at said second sensor; and

d. reporting obstruction of blood flow within said vessel if a significant difference is found to exist between said first pressure measurement and said second pressure measurement.

5. The method of claim 4, wherein a difference between said first pressure measurement and said second pressure measurement is treated as significant if said difference exceeds a predetermined value.

6. The method of claim 4, further comprising determining a position of a detected obstruction by determining a position of said balloon when a significant difference is found to exist between said first pressure measurement and said second pressure measurement.

7. The method of claim 6, further comprising determining said position of said balloon by determining a length of penetration of said catheter in said vessel by reading a graduated scale presented on a proximal portion of said catheter, which scale indicates a length to which said catheter has penetrated into said blood vessel.

8. The method of claim 6, further comprising determining said position of said balloon by utilizing an imaging modality to observe said catheter within said vessel.

9. The method of claim 6, further comprising determining said position of said balloon by utilizing an imaging modality to observe a marker on said catheter, which marker is visible under said imaging modality.

10. The method of claim 9, wherein said marker is radio-opaque.

11. The method of claim 10, wherein said imaging modality is a fluoroscope.

12. The method of claim 10, wherein said marker is visible under ultrasound scanning, and said imaging modality is an ultrasound system.

13. A method for measuring an internal dimension of a blood vessel, comprising:

a. introducing into said vessel a balloon catheter having a controllably expandable inflatable balloon and at least one first pressure sensor operable to report pressure between an outer wall of said balloon and an inner wall of said blood vessel;

b. expanding said balloon until contact is established between said outer wall of said balloon and said inner wall of said blood vessel, said contact being indicated by a rise in pressure reported by said at least one first pressure sensor; and

c. determining and reporting an external dimension of said balloon when said rise in pressure is detected,

thereby measuring said internal dimension of said blood vessel..

14. The method of claim 13, wherein said external dimension of said balloon is determined by inspecting said balloon under an imaging modality.

15. The method of claim 14, wherein said imaging modality is an x-ray system.

16. The method of claim 14, wherein said imaging modality is a fluoroscope.

17. The method of claim 14, wherein said imaging modality is an ultrasound system.

18. The method of claim 13, wherein said external dimension of said balloon is determined by utilizing a second pressure sensor to measure pressure of an inflation fluid inflating said balloon, and calculating said external dimension as a function of said measured pressure of said inflation fluid as reported by said second pressure sensor.

19. The method of claim 18, wherein said calculation is based on known characteristics of expansibility of said balloon under varying conditions of pressure.

20. The method of claim 13, further comprising utilizing a plurality of said first pressure sensors.

21. The method of claim 20, wherein said plurality of first pressure sensors is arranged in a circumferential configuration on said balloon.

22. The method of claim 20, wherein said plurality of first pressure sensors is arranged in a plurality of circumferential configurations on said balloon.

23. A method for distinguishing between standard plaque and vulnerable plaque in a blood vessel, comprising:

a. introducing into said vessel a balloon catheter having a controllably expandable inflatable balloon and at least one first pressure sensor operable to report pressure between an outer wall of said balloon and an inner wall of said blood vessel;

b. expanding said balloon until contact is established between said outer wall of said balloon and said inner wall of said blood vessel, said contact being indicated by a detected rise in pressure reported by said at least one first pressure sensor;

c. further expanding said balloon to a controlled degree;

d. utilizing said at least one first pressure sensor to report pressure between said outer wall of said balloon and said inner wall of said blood vessel;

e. comparing said reported pressure to pressure values appropriate for healthy blood vessel wall tissues;

f. reporting presence of standard plaque if said reported pressure is greater than said values appropriate for healthy blood vessel tissues; and

g. reporting presence of vulnerable plaque if said reported pressure is less than said values appropriate for healthy blood vessel tissues.